What is claimed is:

1 A data bus control method for an artificial satellite load, which controls data communication between a plurality of communication terminals and a data bus control apparatus, characterized in that a periodical processing time band during which communication is periodically conducted between the plurality of communication terminals and the data bus control apparatus and a non-periodical processing time band during which communication is non-periodically conducted between said plurality of communication terminals and said data bus control apparatus are independently provided, and data transmission is conducted at a variable length packet unit during said non-periodical processing time band.

2 A data bus control method for an artificial satellite load recited in claim 1, characterized in that collection of communication requests (polling) during the non-periodical processing time band from the plurality of communication terminal is time-divisionally conducted.

3 A data bus control method for an artificial satellite load recited in claim 1, characterized in that communication terminals for conducting communication with priority during each non-periodical processing time band are previously

determined and a schedule is made out, and based on said schedule, processing of a communication request is conducted.

4 A data bus control method for an artificial satellite load recited in claim 2, characterized in that communication terminals for conducting communication with priority during each non-periodical processing time band are previously determined and a schedule is made out, and based on said schedule, processing of a communication request is conducted.

5 A data bus control method for an artificial satellite load recited in claim 3, characterized in that, in case that communication requests from the communication terminals for conducting communication with priority during the non-periodical processing time band do not exist, said non-periodical time band is allocated to communication with other communication terminals.

6 A data bus control method for an artificial satellite load recited in any of claim 1, characterized in that the communication requests from the communication terminals, which are conducted during the non-periodical processing time band, are averaged by a time period during which transmission of a plurality of packets is conducted.

7 A data bus control method for an artificial satellite load, which controls data communication between a plurality of communication terminals and a data bus control apparatus, characterized in that the method comprises steps of:

independently providing a periodical processing time band during which communication is periodically conducted between the plurality of communication terminals and the data bus control apparatus and a non-periodical processing time band during which communication is non-periodically conducted between said plurality of communication terminals and said data bus control apparatus;

allocating an allowable band in said non-periodical processing time band to each communication terminal;

time-dividing collection of communication requests (polling) to each communication terminal during said non-periodical processing time band, and previously determining communication terminals for conducting communication with priority during each non-periodical processing time band and making out a schedule;

conducting collection of communication requests (polling) to communication terminals for conducting communication with priority during said non-periodical processing time band, based on said schedule;

as a result of the collection of the communication requests, in case that the communication requests from the communication

terminals exist, allowing transmission if a data content to be transmitted, which is averaged by a time period during which transmission of a plurality of packets is conducted, is below or equal to said allocated allowable band, and suppressing transmission if it is above or equal to said allocated allowable band; and

transmitting one variable length packet from the communication terminal in one non-periodical processing time band during which transmission is allowed.

8 A data bus control method for an artificial satellite load recited in claim 7, characterized in that determination of transmission allowance is determined based on an equation below,

$$L(n) + L(n+1) + ... + L(n+m) \leq BWalloc \times TmP$$

where BWalloc is the allocated allowable band,
L(n) is the n-th packet length, and
Tmp is a time period until the communication terminal can set the (n+m)-th packet transmission request since it sets the n-th packet transmission request.

9 A data bus control method for an artificial satellite load recited in claim 7, further comprises a step of allocating said

non-periodical time band to communication with other communication terminals in case that communication requests from the communication terminals for conducting communication with priority during said non-periodical processing time band do not exist.

10 A data bus control method for an artificial satellite load recited in claim 8, further comprises a step of allocating said non-periodical time band to communication with other communication terminals in case that communication requests from the communication terminals for conducting communication with priority during said non-periodical processing time band do not exist.

11 A data bus control system for an artificial satellite load, which controls data communication between a plurality of communication terminals and a data bus control apparatus, characterized in that a periodical processing time band during which communication is periodically conducted between the plurality of communication terminals and the data bus control apparatus and a non-periodical processing time band during which communication is non-periodically conducted between said plurality of communication terminals and said data bus control apparatus are independently provided, and the system comprises:

a schedule table in which numbers of communication terminals for conducting communication with priority during each non-periodical processing time period are described;

means for conducting collection of communication requests (polling) to the communication terminals having the numbers which are described in said schedule table;

control means for, in case that the communication requests from said communication terminals exist, allowing transmission if a data content to be transmitted, which is averaged by a time period during which transmission of a plurality of packets is conducted, is below or equal to an allowable band allocated to said communication terminals, and suppressing transmission if it is above or equal to said allocated allowable band; and

means for allowing transmission of one variable length packet during a non-periodical processing time band of said communication terminal in case that the transmission is allowed.

12 A data bus control system for an artificial satellite load recited in claim 11, characterized in that said control means conducts determination based on an equation below,

$$L(n) + L(n+1) + ... + L(n+m) \leq BWalloc \times TmP$$

where BWalloc is the allocated allowable band,

L(n) is the n-th packet length, and

Tmp is a time period until the communication terminal can set the (n+m)-th packet transmission request since it sets the n-th packet transmission request.

13 A data bus control system for an artificial satellite load recited in claim 11, further comprises means for allocating said non-periodical time band to communication with other communication terminals in case that communication requests from the communication terminals for conducting communication with priority during said non-periodical processing time band do not exist.